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CONTRIBUTION TO THE LICHEN FLORA OF SOUTH EAST GREENLAND. III. THE COASTAL AREA BETWEEN 63° AND 65° N

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Abstract

Hansen E. S., 2015: Contribution to the lichen flora of South East Greenland. III. The coastal area between 63° and 65° N [Papildomi duomenys apie pietryčių Grenlandijos kerpių florą. III. Pakrantės zona tarp 63° ir 65° N lygiagrečių]. – Bot. Lith., 21(2): 119–124.

The paper lists 95 lichen taxa from the coastal area between 63° and 65° N in South East Greenland. Of these, 46 lichens were recorded for the first time from the area. *Lecanora symmicta* and *Ochrolechia tartarea* are new to East Greenland. *Acarospora badiofusca*, *Aspicilia annulata* and *Parmeliella triptophylla* are new to South East Greenland.

Keywords: Arctic region, diversity, lichens, species.

INTRODUCTION

In a previous paper dealing with the occurrence and distribution of lichens in South East Greenland, the author listed one hundred and sixteen lichen species from the coastal area between 63° and 65° N together with numerous species from Ammassalik Ø, Tugtilik and Kangerlussuaq (HANSEN, 1978a). New revisions of the lichen material from these areas have resulted in numerous additional taxa, which were neglected during the original study. The main purposes of the field work in the summers of 1970 and 1971 were to carry out ecological and phytosociological investigations and collect lichens as part of the work implemented by the Greenland Botanical Survey (G. B. U.) in different regions of Greenland. The Norwegians B. Bjørlykke and J. Kr. Tornøe collected 71 species of lichens in the region in 1931 (LYNGE, 1932). In 1932, P. F. Scholander carried out extensive lichen collections in South East Greenland including the area dealt with in the present paper (DAHL et al., 1937). It aims to stimulate the future

lichen research in the region, which previously was difficult of access because of sea ice (“storis”).

STUDY AREA

Collecting of lichens was carried out by the author in the following eleven localities (HANSEN, 1978a): 1. Cove west of Hermods Vig (63°22' N, 41°26' W) – 12 August 1970; 2. Nørre Skjoldungesund (63°22' N, 41°27' W) – 12 August 1970; 3. Langenæs/Itivdlerssuaq (63°23' N, 41°24' W) – 17–21 August 1970; 4. Kitaajik (63°28' N, 40°52' W) – 21 August 1970; 5. Dronning Maries Dal/Eqalungmiut (63°28' N, 41°55' W) – 13–17 August 1971; 6. Siorartussoq Ø (63°35' N, 40°42' W) – 22 August 1970; 7. Vales Fjord (63°35' N, 40°53' W) – 23 August 1970; 8. Tre Løvers Ø (64°11' N, 41°08' W) – 26 August 1970; 9. Gerners Ø/Kulusuk (64°19' N, 40°24' W) – 27 August 1970; 10. Island east of Nunarssuaq, Nansens Bugt (64°20' N, 40°40' W) – 25 August 1970; 11. Island in the western part of

Nansens Bugt (64°20' N, 40°52' W) – 25 August 1970. Lichens were studied in the lowland and up to c. 600 m a. s. l. in the investigation area, which contains up to more than 2000 m high mountains. The rocks are largely composed of Archaean granite belonging to the Skjoldungen complex (loc. 1, 2, 4) and granodioritic gneisses intersected by basic dykes (loc. 4–11). Loc. 3 is characterized by Archaean micaceous schist as layer in granodioritic gneiss situated near the border of the Skjoldungen complex (HANSEN, 1978a). Floristically and climatically, the investigation area is located in the low arctic, oceanic region (JENSEN, 1999). The dwarf shrub species *Empetrum hermaphroditum*, *Salix glauca* and *Vaccinium uliginosum* form low heath vegetation more or less rich in mosses, different herbs, grasses and sedges. Fell fields with scattered vegetation occur commonly. North exposed places are often covered by species such as *Sibbaldia procumbens*, *Salix herbacea* and *Harrimanella hypnoides*. Well-developed herb slopes are occasionally found in south exposed sites. Fens and marshes occur commonly contrary to proper *Salix glauca* copses, which avoid the outer coast with its cold climate. Information about climatic conditions in South East Greenland is sparse. In Tingmiarmiut (62°32' N, 42°09' W), which is situated to the south of Skjoldungen with Dronning Mariæ Dal, the mean temperature in the warmest month August is 5.9°C, while the mean temperature in the coldest month March is -7.3°C. The mean annual precipitation is 1495 mm indicating a fairly moist climate (HANSEN, 1978a).

MATERIALS AND METHODS

Collecting of lichens was carried out by the author in the above mentioned eleven localities between 63° and 65° N on 12–27 August 1970. A total of 340 lichen specimens were studied using Zeiss light microscopes and identified by the author. The nomenclature in the list is presented after SANTESSON et al. (2004) with some exceptions. The specimens are deposited at the Botanical Museum of the University of Copenhagen (C).

Lichens new to South East Greenland south of Tasiilaq (65°36' N, 37°38' W) are marked with one asterisk (*). Two asterisks (**) indicate a taxon new

to South East Greenland inclusive Tasiilaq, Tugtilik and Kangerlussuaq, three asterisks (***) – species is new to East Greenland; “ap.” and “pe.” mean presence of apothecia and perithecia, respectively; “st.” means that the specimen is sterile. Annotations are given regarding substrate of the lichens and their occurrence in South East Greenland. Additional information about the distribution in Greenland is given for the selected species of particular interest. General information about the total distribution of the lichens in Greenland is presented after HANSEN (1995), THOMSON (1984, 1997), KRISTINSSON et al. (2010).

RESULTS

The present paper demonstrates that the lichen flora occurring in the area between 63° and 65° N in South East Greenland is richer in interesting lichens than it had been indicated by the comparatively few previous records from the area. Two species, *Lecanora symmicta* and *Ochrolechia tartarea*, are new to East Greenland, and three, *Acarospora badiofusca*, *Aspicilia annulata* and *Parmeliella triptophylla*, are new to South East Greenland. Forty six lichen taxa are new to the investigation area.

Lichens growing on soil and plant remains in open places in dwarf shrub heaths, such as *Arthrorhaphis alpina*, *Biatora vernalis*, *Bryonora castanea*, *Buellia papillata*, *Caloplaca tetraspora* and *Lopadium coralloideum*, were more or less common in the investigation area. *Caloplaca tornoënsis* and *Rinodina archaea* were rarely found on dead twigs, and *Lecanora leucococca* on old bones occurring scattered on the ground. Rocks exposed to strong winds supported species such as *Calvitimela aglaea* and *C. armeniaca*. Temporarily moist rocks held a characteristic lichen vegetation composed of species such as *Caloplaca castellana*, *Ionaspis suaveolens*, *Placynthium asperellum*, *P. panariellum*, *Staurothele fissa*, *Umbilicaria deusta* and *Vestergrenopsis isidiata*. *Verrucaria ceuthocarpa*, *V. maura* and *V. mucosa* occurred more or less commonly on seashore rocks. Generally the lichen flora reflects the moist, oceanic climatic conditions prevailing in the region, and it agrees fairly well with that of, for example, Tasiilaq, Sermilik and Tugtilik in this respect (DAHL et al., 1937; DANIELS, 1982; HANSEN, 2002, 2012, 2015).

List of species

- ** *Acarospora badiofusca* (Nyl.) Th.Fr. – on manured siliceous rocks; 3, 6; ap.
- Acarospora molybdina* (Wahlenb.) A.Massal. – on siliceous rocks, together with *Lecanora polytropia*; 6, 11; ap. – The species has previously been reported from Sermilik (HANSEN, 2002).
- * *Amandinea cacuminum* (Th.Fr.) H.Mayrhofer & Sheard – on manured siliceous rocks, together with *Rhizoplaca melanophthalma*; 5; ap.
- * *Amandinea punctata* (Hoffm.) Coppins & Scheid. – on soil rich in humus; 5; ap.
- * *Amygdalaria panaeola* (Ach.) Hertel & Brodo – on siliceous rock; 3; st.
- Arthrorhaphis alpina* (Schaer.) R.Sant. – on mineral soil; 9; st.
- ** *Aspicilia annulata* (Lynge) Thomson – on siliceous rock; 5; ap. – The species has previously been reported from Disko in Central West Greenland and a few localities in North East Greenland (ALSTRUP et al., 2000; LYNGE, 1937, 1940).
- * *Aspicilia caesiocinerea* (Nyl. ex Malbr.) Arnold – on manured siliceous rock; 5; ap.
- * *Aspicilia contorta* (Hoffm.) Kremp. – on siliceous rock; 3; st. – The species has been collected at Turner Sund (VAINIO, 1905).
- * *Aspicilia mastoidea* (Lynge) Thomson – on siliceous rocks; 4, 5, 6; st.
- Bellemerea alpina* (Sommerf.) Clauzade & Cl.Roux – on siliceous rocks; 3, 4, 5; ap.
- * *Bellemerea cinereorufescens* (Ach.) Clauzade & C.Roux – on siliceous rock, together with *Rhizocarpon geographicum*; 9; ap.
- * *Bellemerea subsorediza* (Lynge) R.Sant. – on siliceous rock; 4; ap.
- Biatorea cuprea* (Sommerf.) Fr. – on bare soil; 2, 5; ap. – The species is fairly common in South East Greenland south of Tasiilaq (DAHL et al., 1937).
- Biatorea vernalis* (L.) Fr. – on soil and old wood; 3, 5, 9, 10, 11; ap.
- Bryonora castanea* (Hepp) Poelt – on plant remains; 4, 5, 9, 11; ap.
- Buellia papillata* (Sommerf.) Tuck. – on dead mosses; 3, 4, 5, 9, 11; ap.
- * *Caloplaca ammiopsila* (Wahlenb.) H.Olivier – on plant remains; 11; ap.
- * *Caloplaca castellana* (Räsänen) Poelt – on moist siliceous rock, together with *Placynthium asperellum*; 9; ap.
- Caloplaca cerina* (Ehrh. ex Hedw.) Th.Fr. – on soil rich in humus, together with *Buellia papillata*; 9, 11; ap.
- * *Caloplaca jungermanniae* (Vahl) Th.Fr. – on soil rich in humus; 3, 5; ap.
- Caloplaca tetraspora* (Nyl.) H.Olivier – on plant remains; 9; ap.
- Coloplaca tirolensis* Zahlbr. – on dead mosses; 11; ap.
- * *Caloplaca tornoënsis* H.Magn. – on dead twig; 5; ap. – The species is also known from Tugtilik (HANSEN et al., 1987).
- * *Calvitimela aglaea* (Sommerf.) Hafellner – on siliceous rocks exposed to strong winds; ap.
- * *Calvitimela armeniaca* (DC.) Hafellner – on siliceous rocks exposed to strong winds; 3, 9; ap.
- * *Candelariella dispersa* (Räsänen) Hakul. – on *Placynthium asperellum* on siliceous rocks; 3, 5; st.
- Candelariella vitellina* (Hoffm.) Müll.Arg. – on siliceous and basaltic rocks; 3, 11; st.
- Cetraria aculeata* (Schreb.) Fr. – on soil; 4; st.
- Cetraria muricata* (Ach.) Eckfeldt – on soil; 4; st.
- * *Cladonia borealis* S.Stenroos – on mosses and soil rich in humus; 1, 5, 6, 8, 9; ap.
- Cladonia crispata* (Ach.) Flot. – on soil; 4; st.
- Cladonia fimbriata* (L.) Fr. – on plant remains; 8, 9; st.
- * *Cladonia libifera* V.P. Savicz – on soil rich in humus; 3, 5; st. – The species is also known from Kangerlussuaq (HANSEN & Ahti, 2011).
- Cladonia macroceras* (Delise) Hav. – on soil; 1, 2, 3, 4, 5, 6, 9; ap.
- Cladonia macrophyllodes* Nyl. – on soil; 3, 5, 6, 8, 10; ap.
- Cladonia pocillum* (Ach.) Grognot – on soil; 7; st.
- Cladonia sulphurina* (Michx.) Fr. – on soil; 6; st.
- * *Cladonia trassii* Ahti – on soil; 3, 4, 5, 6, 8, 9; ap.
- * *Euopsis pulvinata* (Schaer.) Vain. – on siliceous rocks; 3; ap.
- Frutidella caesiopatra* (Schaer.) Kalb – on mosses and soil rich in humus; 3, 5, 6; ap.
- * *Ionaspis suaveolens* (Fr.) Th.Fr. ex Stein. – on temporarily moist siliceous rock; 3; ap.
- Lecanora argopholis* (Ach.) Ach. – on manured siliceous rocks; 3, 5, 6; ap.
- Lecanora atosulphurea* (Wahlenb.) Ach. – on siliceous rock; 3, 5, 9; ap. – The species has a somewhat scattered occurrence in South East Greenland (LAMB, 1940; HANSEN, 1984).

* *Lecanora contractula* Nyl. – on siliceous rocks; 5, 6; ap.

Lecanora intricata (Ach.) Ach. – on manured siliceous rock; 5; ap.

Lecanora leucococca Sommerf. – on siliceous rocks and old bone; 3, 4, 5, 6; ap.

*** *Lecanora symmicta* (Ach.) Ach. – on dead twig, together with *Caloplaca tornoënsis*; 5; ap. – The species is a common epiphytic lichen in South West Greenland (HANSEN, 1978b; ALSTRUP, 1982).

Lecidea atrobrunnea (Ramond ex Lam. & DC.) Schaer. – on manured siliceous rocks; 6, 9, 11; ap.

* *Lecidea tessellata* Flörke – on siliceous rock, together with *Rhizocarpon geographicum*; 5; ap.

Lopadium coralloideum (Nyl.) Lynge – on plant remains, together with *Biatora vernalis*; 4, 5; ap. – The species has previously been reported from Langelæs (= “Finnsbu”) (DAHL et al., 1937).

Massalongia carnosa (Dicks.) Körb. – on dead mosses; 5; st. – The species has a somewhat scattered occurrence in South East Greenland (DAHL et al., 1937; HANSEN, 2002).

Miriquidica leucophaea (Flörke ex Rabenh.) Hertel & Rambold – on siliceous rocks, together with *Tremolecia atrata*; 4, 5, 8; ap.

Nephroma bellum (Spreng.) Tuck. – among mosses on soil and plant remains, together with *Buelia papillata*; 5; ap.

* *Ochrolechia alaskana* (Versegghy) Kukwa – on mosses and plant remains, together with *Cladonia sulphurina*; 3, 4, 5, 6, 7, 9; ap.

*** *Ochrolechia tartarea* (L.) A.Massal – on siliceous rock; 5; st. – The species has a wide distribution in West Greenland (HANSEN, 1993; KRISTINSON et al., 2010).

Orphniospora moriopsis (A.Massal.) D.Hawksw. – on siliceous rock, together with *Umbilicaria hyperborea*; 6; ap.

** *Parmeliella triptophylla* (Ach.) Müll.Arg. – on soil rich in humus and on dead branch of *Juniperus communis*, together with *Biatora vernalis*; 3, 5; st.

* *Peltigera collina* (Ach.) Schrad. – on plant remains, together with *Bryonora castanea* and *Rinodina archaea*; 5; st.

Peltigera leucophlebia (Nyl.) Gyeln. – on soil; 3, 5; st.

Peltigera scabrosa Th.Fr. – on soil rich in humus; 3; st.

Physcia dubia (Hoffm.) Lettau – on manured siliceous rock, together with *Lecanora polytropa*; 9; st.

* *Placynthiella uliginosa* (Schrad.) Coppins & P.James – on soil; 5; st.

* *Placynthium pannariellum* (Nyl.) H.Magn. – on moist siliceous rocks; 3, 5; ap.

* *Porpidia flavocaerulescens* (Hornem.) Hertel & A.J.Schwab. – on siliceous and basaltic rocks; 3, 4, 7; ap.

* *Porpidia melinodes* (Körb.) Gowan & Ahti – on basaltic rock, together with *Tremolecia atrata*; 11; st.

Protoparmelia badia (Hoffm.) Hafellner – on manured siliceous rocks; 4, 7; ap.

Pseudephebe minuscula (Nyl. ex Arnold) Brodo & D.Hawksw. – on siliceous rocks; 7, 9; ap.

* *Psoroma tenue* Henssen var. *boreale* Henssen – on soil rich in humus; 1, 2, 3, 4, 5, 6, 8, 9, 11; ap.

* *Pyrenopsis furfurea* (Nyl.) Leight. – on soil; 3; ap.

Rhizocarpon badioatrum (Flörke ex Spreng.) Th.Fr. – on siliceous rocks; 3, 4, 7; ap.

* *Rhizocarpon bolanderi* (Tuck.) Herre – on siliceous rocks, together with *Umbilicaria virginis*; 3, 4, 5; st.

Rhizocarpon copelandii (Körb.) Th.Fr. – on siliceous rocks; 3, 11; ap.

* *Rhizocarpon geminatum* Körb. – on manured siliceous rocks, together with *Protoparmelia badia*; 3, 5, 7; ap.

* *Rhizocarpon grande* (Flörke) Arnold – on siliceous rock, together with *Lecanora polytropa*; 10; ap.

Rhizocarpon inarense (Vain.) Vain. – on siliceous rock, together with *Orphniospora moriopsis*; 5; ap.

* *Rhizocarpon jemtlandicum* (Malme) Malme – on siliceous rocks, together with *Umbilicaria hyperborea*; 3, 5, 6; ap.

* *Rimularia impavida* (Th.Fr.) Hertel & Rambold – on *Lecidea atrobrunnea* on siliceous rock; 4; st. – The species is also known from Tassilaq (HANSEN, 2002).

* *Rinodina archaea* (Ach.) Arnold – on plant fragments and dead twig of *Juniperus communis*, together with *Parmeliopsis ambigua*; 3, 4, 5, 6; ap.

* *Staurothele fissa* (Taylor) Zwackh – on moist siliceous rocks, together with *Placynthium pannariellum*; 3, 6, 7, 8; pe.

- Stereocaulon alpinum* Laurer – on soil; 2; st.
 * *Stereocaulom arcticum* Lynge – on soil; 3, 6, 9; st.
 * *Stereocaulon arenarium* (L.I.Savicz) I.M.Lamb – on soil; 3, 5, 8, 9; st.
Stereocaulon botryosum Ach. – on siliceous rock; 8; st.
 * *Stereocaulon glareosum* (L.I.Savicz) H.Magn. – on soil and mosses; 3, 5, 9, 11; ap.
Stereocaulon vesuvianum Pers. – on siliceous rock; 5, 11; st.
Trapeliopsis granulosa (Hoffm.) Lumbsch – on soil rich in humus; 5, 8; ap.
Umbilicaria deusta (L.) Baumg. – on moist siliceous rock; 8; st.
Umbilicaria hyperborea (Ach.) Hoffm. – on siliceous rock; 8; ap.
Umbilicaria torrefacta (Lightf.) Schrad. – on siliceous rocks; 7, 11; ap.
Umbilicaria virginis Schaer. – on siliceous rocks; 3, 4, 5, 9; ap.
Verrucaria ceuthocarpa Wahlenb. – on siliceous seashore rocks; 3, 7, 9, 11; pe.
Verrucaria maura Wahlenb. – on siliceous seashore rock; 3; pe.
 * *Verrucaria mucosa* Wahlenb. – on siliceous seashore rock; 3; st.
Vestergrenopsis isidiata (Degel.) E.Dahl – on moist siliceous rock; 5; st. – The species is also known from Tasiilaq (HANSEN, 2002).

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PAPILDOMI DUOMENYS APIE PIETRYČIŲ GRENLANDIJOS KERPIŲ FLORĄ III. PAKRANTĖS ZONA TARP 63° IR 65° N LYGIAGREČIŲ

Eric Steen HANSEN

Santrauka

Straipsnyje pateikiamas 95 kerpių taksonų sąrašas ir duomenys apie 69 kerpių taksonus iš pakrantės zonos tarp 63° ir 65° N lygiagrečių pietryčių Grenlandijoje. Iš jų 46 kerpės užregistruotos pirmą kartą šioje teritorijoje. *Lecanora symmicta* ir *Ochrolechia tartarea* pirmą kartą rastos rytinėje Grenlandijoje, o *Acarospora badiofusca*, *Aspicilia annulata* ir *Parmeliella triptophylla* – pietrytinėje Grenlandijoje.